Delusional Infestation (DI)

Definition, history, and resources for applicators

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Residential/Commercial

304 (section 2)

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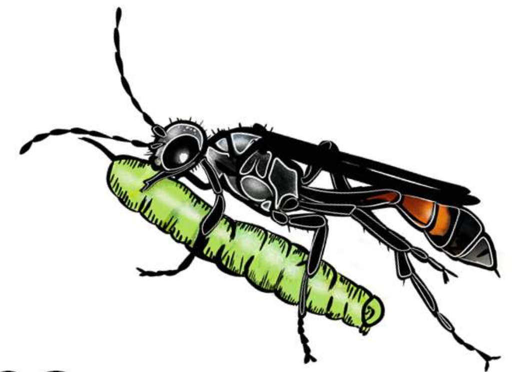
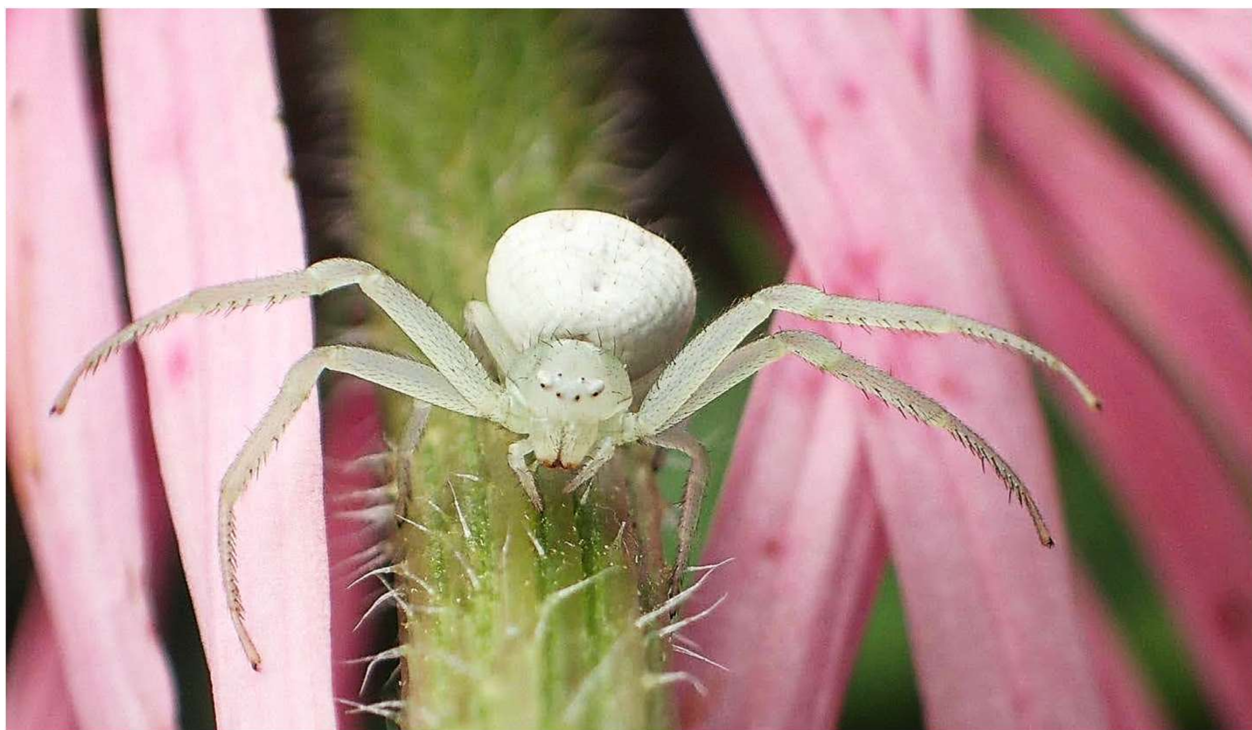


Arthropod Identification

Arachnid identification

Insect identification



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5. American plum borer urban forestry research
6. Ash bark beetle urban forestry research
7. Banks grass miticide trials with Hammon Ag LLC

Area Wide Insect Monitoring

Cooperative Agriculture Pest Survey: Stone Fruit and Grape

First detectors of invasive biology

Early detection and Rapid Response

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A note about today's topic

Talking about death and dying can be difficult for some students. It can bringup emotions and memories or those that we have lost. It is very important to approach this class remembering that everyone's experience with death is different. This should be a safe and respectful space.

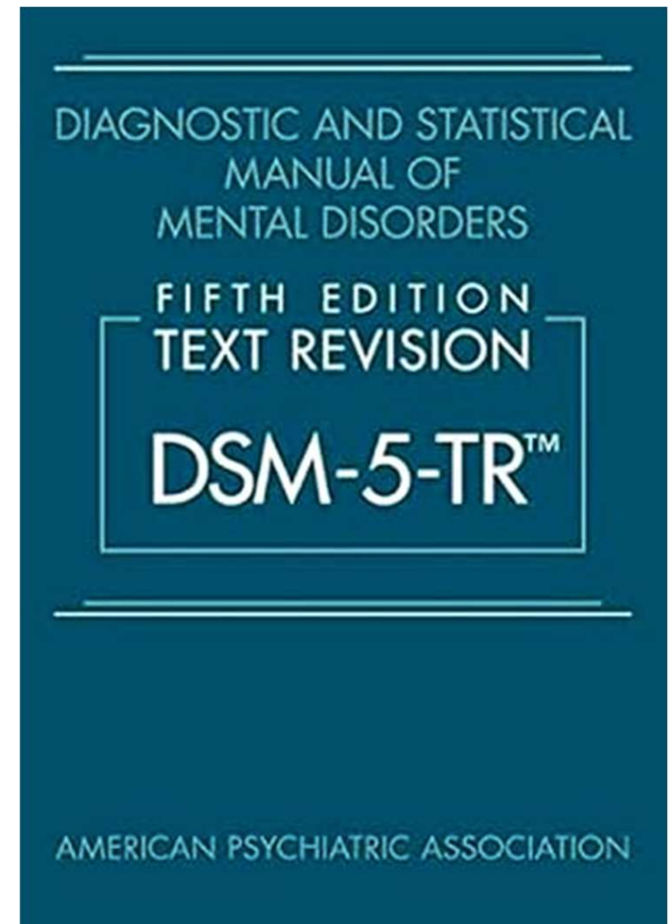
If you wish to speak to one of the instructors, please message directly in the chat.

Thank you

Presentation Agenda:

-Definition and Explanation
-History of Delusional Infestation
-Recommendations & Resources for applicators
-How can CSU Extension help
-Addressing DI in Mesa County

In the **Diagnostic and Statistical Manual of Mental Disorders**, which most psychiatrists use, DI is defined as an unshakeable belief that you are being attacked by bugs or parasites even when there is no evidence of infestation.

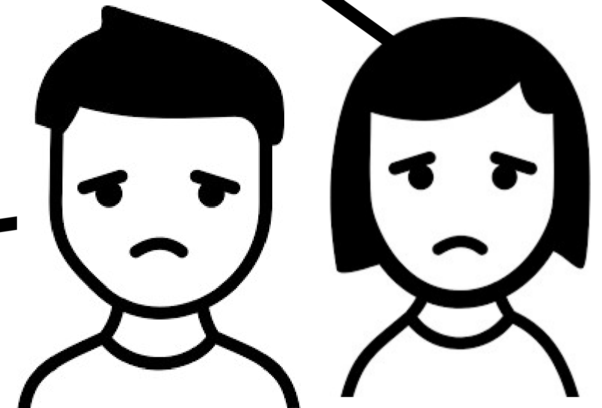


Delusional infestation
primary disorder or secondary psychiatric disorders (e.g., schizophrenia, bipolar disorder), substance abuse, or medical conditions (e.g., neurological disorders, dermatological conditions). It can also be induced by substance use, medications, or environmental factors.

The **exact prevalence of delusional infestation is unknown**, but it is believed to be **underdiagnosed** due to the stigma associated with psychiatric disorders and the **reluctance of patients to seek psychiatric help**.

Primary Care Physicians
Dermatologists and Vets
Entomologists/Extension Offices
Pharmacists
Family, Friends, Roommates
Online Communities
Exterminators
Pesticide Applicators
Alternative Medicine Practitioners
Psychiatrists and Psychologists
Health Departments
Landlords
Therapists

Searching for help…
getting bounced around
between…



Double Delusion Infestation (DDI):

Someone who has been inferred by the “inducer” as being infested who can’t speak for themselves such as children and animals. They are infesting the inducer. A large study among primary U.S. and Canadian veterinarians found over 300 cases of people with the belief that their pets were infested when it was not the case.

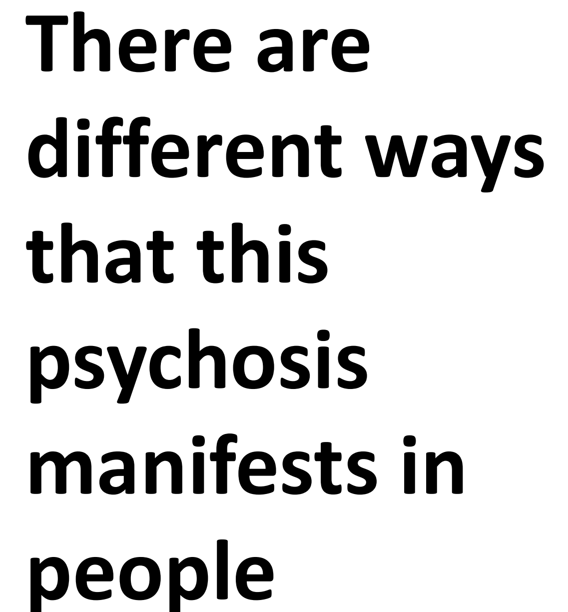
Delusional Infestation by Proxy (DIP)

The inducer thinks that someone else (including animals, children, or objects) are infested and they are not. This could lead to serious child protection issues or pets leading to inappropriate demands to euthanize the animals. Additionally, the environment, house, car, particular rooms, wild or domesticated animals can also be included in the list.

Induced Delusional Infestation (IDI)

(Folie à deux, Folie à trios, Folie à familar):

The inducer can induce a manifestation of the disorder in others who are associated with them.



When it comes to DI most physicians and Medical Doctors don’t have much training.

Some doctors look at the person’s own scratch marks and think …

1. they’re insect bites;
2. some prescribe parasite-killing medicines that don’t work because there are **no parasites to kill**.
3. When the bites and bugs don’t go away, some refer the patients to an entomologist.

"Most doctors, including dermatologists or general practitioners, within five minutes they know — *or they think they know* — it's not a medical problem. Within 10 minutes, they send them away. But these patients are really suffering."
-Dr. Gale Ridge, Entomology National Expert on DI

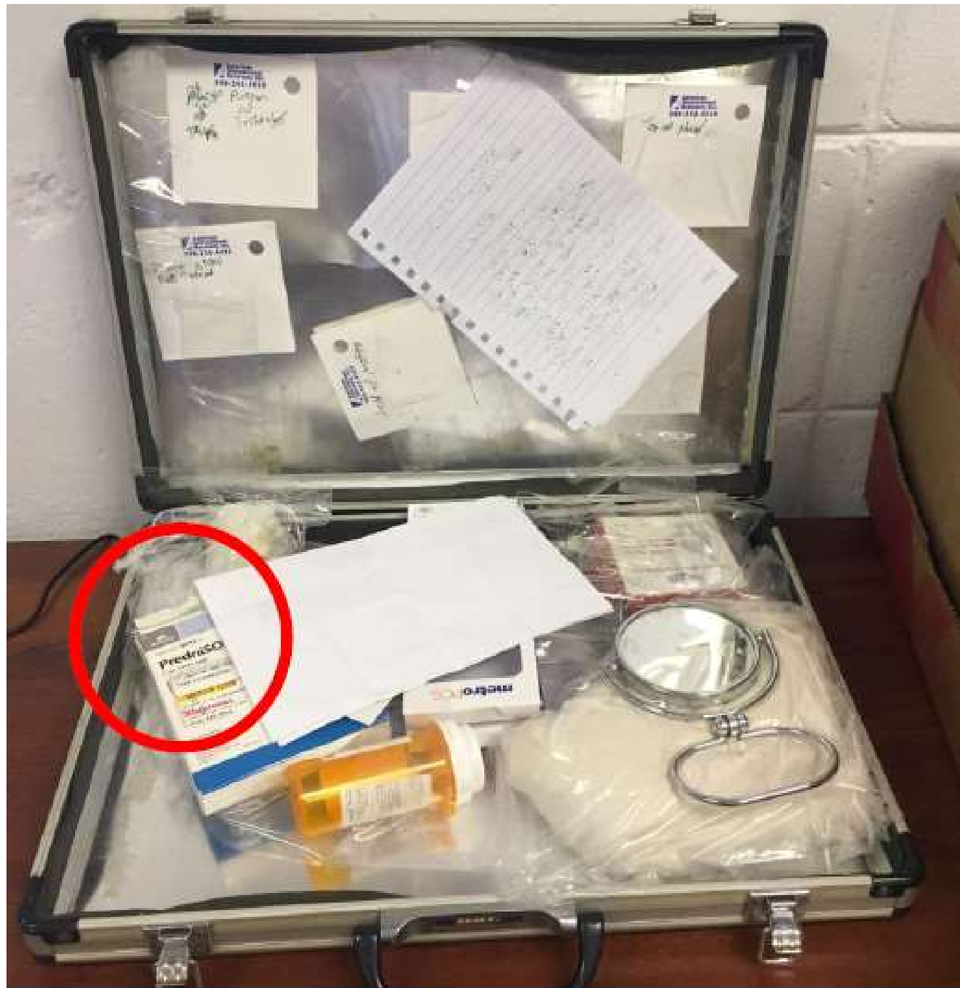
To be fair, DI poses a challenge even for the best-trained physician. **The patients believe that the proper medication is not an antipsychotic but an antiparasitic, that the correct expert is not a psychiatrist but an insect specialist**.

Table 2. DP sufferers' descriptions of what is infesting them

1. Black and white, but change colors (Waldron 1962, St. Aubin 1981, Monk and Rao 1994)
2. Jump or fly (Waldron 1962, Monk and Rao 1994)
3. Have eight little legs and a small sucker (Gieler and Knoll 1990)
4. Half moon shape, like the end of a fingernail (Lyell 1983, Hinkle 1998)
5. Moth-like creatures (Monk and Rao 1994, Hinkle 1998)
6. Waxy looking fuzz balls (Schrut and Waldron 1963, Hinkle 1998)
7. Granules about the size of a grain of salt (Schrut and Waldron 1963, de Leon et al. 1992, Hinkle 1998)
8. Long hairs that move independently (Hinkle 1998)
9. Tiny white worm with a brown bulb on its head (Hinkle 1998)
10. Worm-like coating around the hair root, with a black bulb attached (Hinkle 1998)
11. Greenish-grey cigar shaped things (Hinkle 1998)
12. Infest inanimate objects: automobiles, furniture, clothing, rugs (Grace and Wood 1987)

Individuals impacted by DI often…

Are high functioning individuals.
Overdocumentation without physical evidence.
Have desperation, paranoia, and confusion.
Excessive ritualistic cleaning.
Picking and scratching.
Unusual pain tolerance.
Visual and tactile hallucination.
Are self treating (alcohol, medicine, hairdryers, and chemicals).
Suffer worse the longer symptoms go on
High sample volume – Sample and document obsessively
Visit every professional they can, often returning multiple times



by Nancy Hinkle, University of Georgia.

Samples submitted by people suspected DI:

Soil, sand, hair, lint, wood, burnt items, clothing, hearing aids, pillows,

Skin, scabs, other medical samples

Agent Orange long term effects; peripheral neuropathy.
Aging.
AIDS/HIV.
Alcohol withdrawal.

Medical conditions, allergies, traumas, etc. that can trigger DI.

Grover's disease.
Hallucinations, especially visual.
Heavy metal toxicity.
Hemochromatosis (liver disease).
Hepatic disease (alcoholic fatty liver disease).
Hepatitis B and C.
Herpes zoster infection (Shingles).
Human immunodeficiency virus.
Huntington's disease.
Hyper-awareness of normal nerve end firing.
Hypertension.
Hyperthyroidism.
Hypoglycemia (low blood sugar).
Hypoperfusion in temporal & parietal lobes of the brain.
Hypothyroidism.
Hypovitaminosis, including B12 deficiency.
Illegal drug use especially stimulants (Cocaine, Cannabis, amphetamines).
Illegal drug use withdrawal.
Insect phobia.
Interferon therapy.
Internet searches with confirmation bias.
Intestinal flora and fauna imbalance.

Paper sensitivities.
Parasthesia (pins and needles).
Parkinson's disease.
Parkinsonian medication.
Pathologic skin picking (PSP).
Pemphigoid (dermal blistering and rashes).
Pesticide exposure.
Poison ivy exposure causing long term formication.
Polycythemia Vera (elevate red blood cells).
Reduced grey matter in the brain.
Polypharmacy.
Renal diseases.
Rheumatoid arthritis.
Schistosomiasis.
Schizoaffective disorder.
Schizophrenia.
Scleroderma.
Shock and/or trauma with possible PTSD.
Sjögren's syndrome.

Thousands of things can trigger DI

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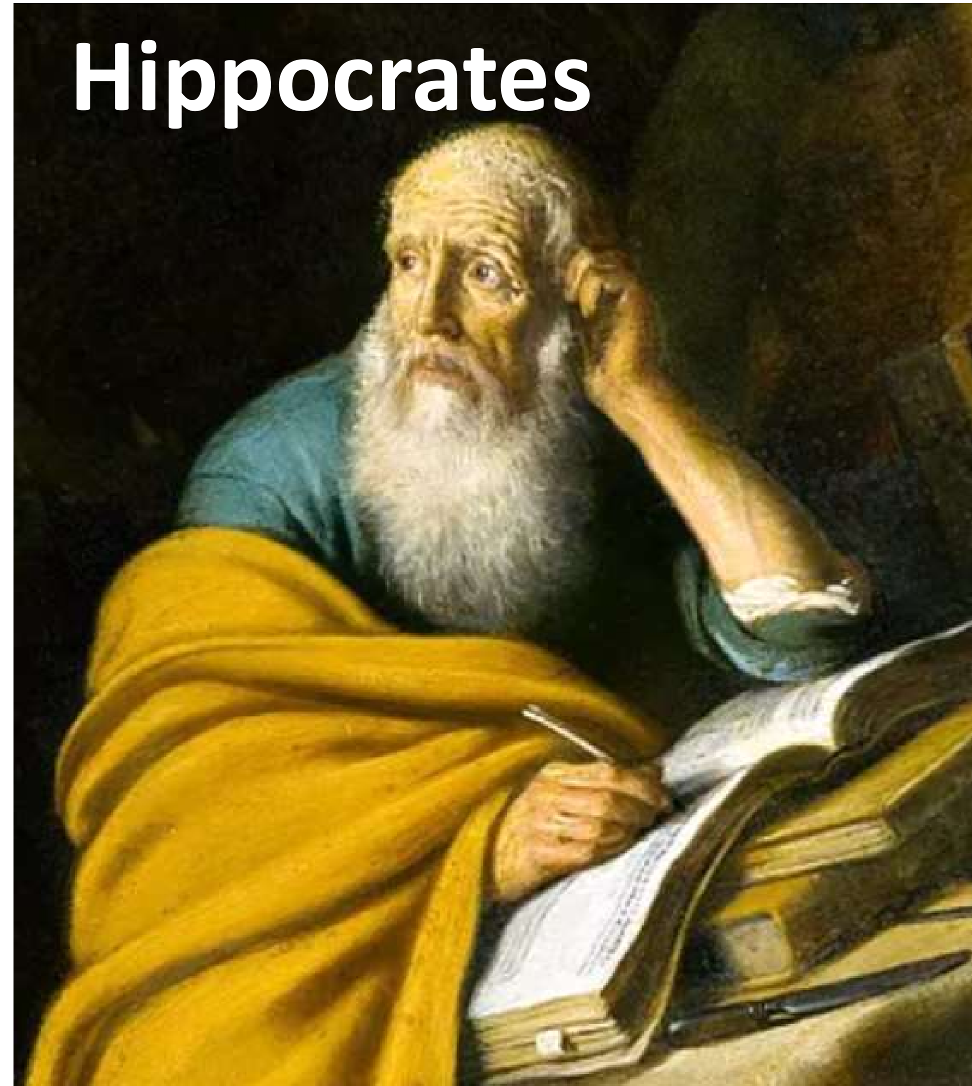
Lichen simplex chronicus.
Liver damage.
Malaria.
Mast-cell-activation syndrome.
Meningitis (central nervous system membrane inflammation).
Menopause (Perimenopausal pruritus).
Mental retardation.
Munchausen by proxy (mental disorder of faked illness to garner attention).
Munchausen disease.
Nasal MRSA carrier.
Neoplasia (abnormal tissue growth).
Neurocysticercosis.
Neuropsychiatric delusion caused by some Tropical diseases (52).
Neurotic excoriation disorder.
Niacin overdose.
Nocturnal pruritus.
Notalgia paresthetica (intense burning/itching inner shoulder blade and spine).
Obsessive compulsive disorders (OCD).
Obesity, poor circulation, and other comorbidities as contributing factors.
Onchocerciasis.
Oncostatin M (OSM), high levels cause chronic itch.
Onychophagia.
Opioids.

Stroke.
Structural lesions in the striatum (putamen) of the brain.
Subdural hematoma.
Syphilis.
Thiamine deficiency.
Trauma to the head.
Traumatic brain injury.
Travel to Tropics within a year of symptom onset.
Trichotillomania disorder.
Trigeminal trophic system.
Tropical diseases.
Tuberculosis.
Trypanosomiasis.
Uremia (kidney and/or bladder disease; hyperuricemia).
Urticaria.
Vitamin B12 deficiency (particularly in people with a Caribbean ancestry).
Vitamin D deficiency.
Wallenberg syndrome.
White matter lesions in the brain.
Zinc deficiency.

- Drug Addiction
- Unexpected Trauma
- Vitamin B-12 deficiency
- Stroke
- Shingles
- Shock
- Isolation
- Stress
- Anxiety
- Malnourishment
- Cancer
- Obsessive compulsive disorder
- Menopause
- Paranoia

History

References to delusional infestation can be found in ancient texts. For example, the Greek physician Hippocrates described a condition called "acarine" in the 5th century BCE, which may have been similar to delusional infestation.

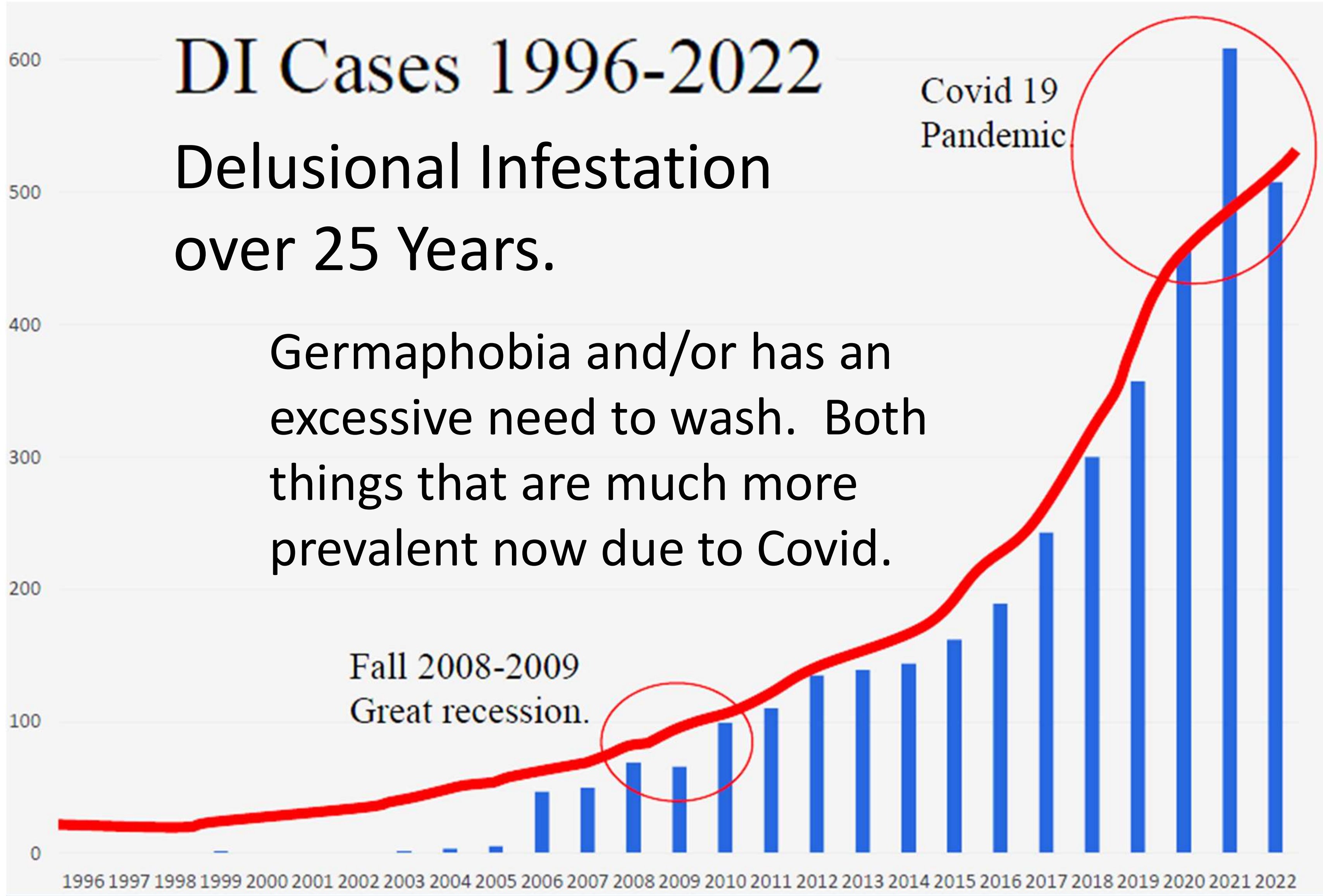


Ancient Egyptian medical texts also mention similar symptoms.

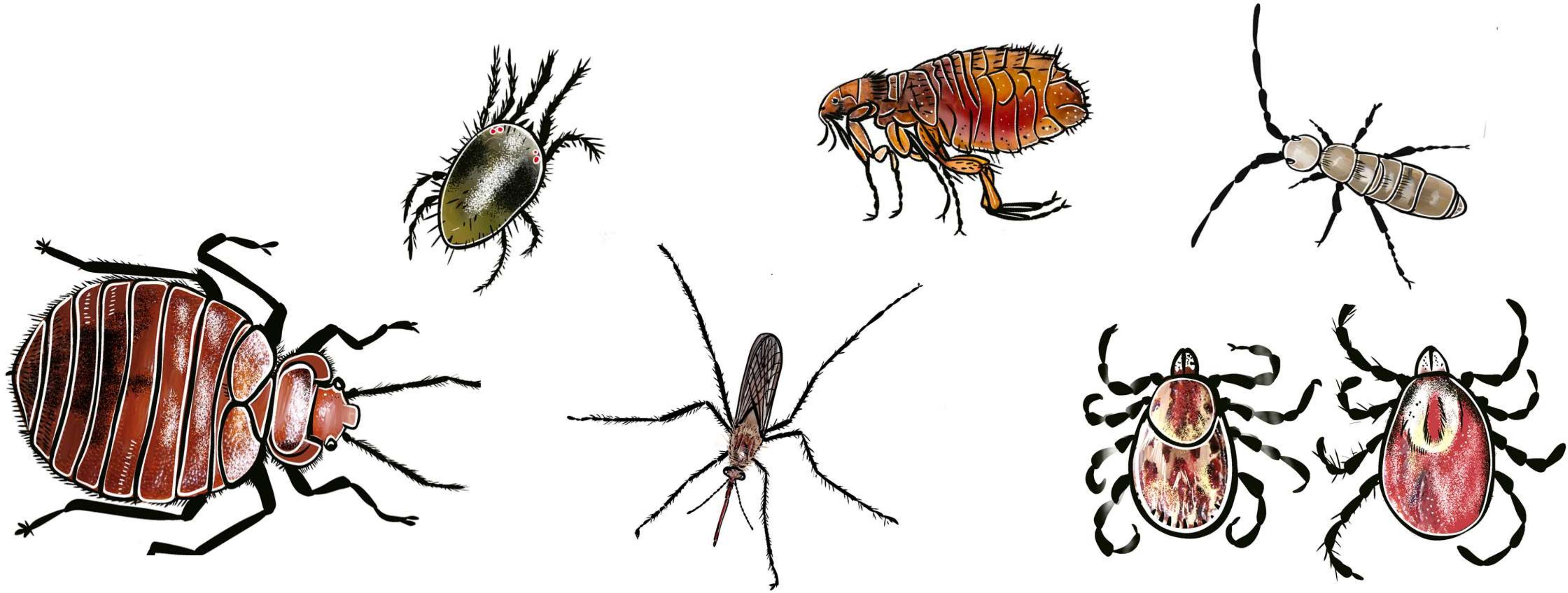
Middle Ages: During the Middle Ages, there were reports of individuals who believed they were infested with insects or worms. These beliefs were often attributed to supernatural causes or demonic possession.

19th Century: The term "delusional parasitosis" was first used in the medical literature in the 19th century.

In 1852, the French dermatologist Dr. Charles Lasegue described a case of a woman who believed she was infested with insects despite no evidence of such infestation.


DI Cases 1996-2022
Delusional Infestation over 25 Years.
Germaphobia and/or has an excessive need to wash. Both things that are much more prevalent now due to Covid.
Covid 19 Pandemic
Fall 2008-2009 Great recession.
0
100
200
300
400
500
600
1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

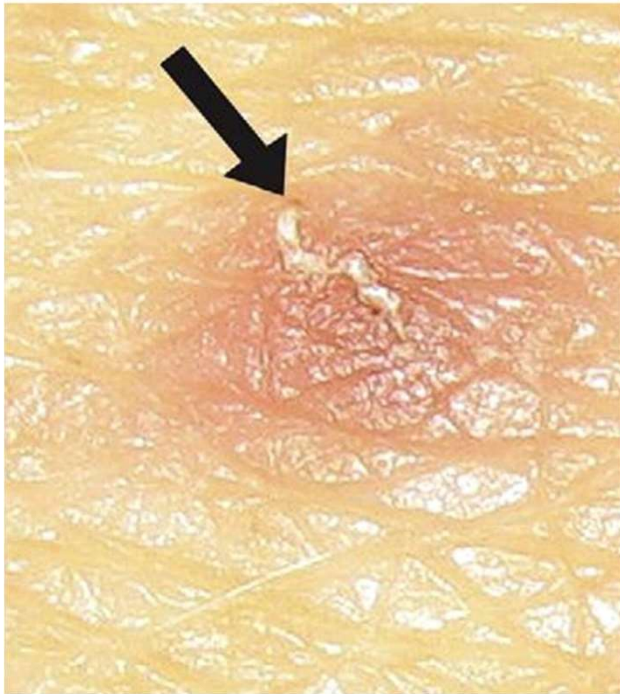
Review of arthropods which **repeatedly** come up in suspected Delusional Infestation cases



Very few arthropods can actually infest human skin (topically or subdermally) and reproduce.

Often clients that will insist otherwise.

Scabies



Stratum corneum
Adult female
Eggs
Egg
0.10–0.15 mm in length
2–3 days
Larva
3–4 days
Nymph Stages
4–7 days
Adult Female
0.30–0.45 mm in length
1–2 months

There is a possibility that the mites could be coming from an animal, the most likely source is a pet. Particularly a dog, which can support *Cheyletiella* sp. mites that may incidentally move onto and bite people. Particularly if it is a small dog that they keep in their lap.

Extremely remotely would be mites coming off a pet bird. That is not only rare, but the bird would be in rough shape if it was being continuously feed upon by some kind of bird mite.

If there is someone complaining about a mite problem for more than a month or two, it is highly probable that the **present situation does not involve mites**. No mites would persist on humans for that length of time - they must be coming off an animal host and incidentally biting - if they exist. Which is unlikely.

Bird Mites
Ornithyssus spp.
Dermanyssus spp.

There are mites that develop on wild birds and these may build up populations in nests. When the nest is abandoned, the mites scatter. If the nest is on the building, some of the mites may move into the home and may bite people.

This has happened in Colorado, particularly with robins, but the biting incidents are transitory, occurring after the birds leave the nest - never in the middle of winter.

Bird Mites as a Pest within Homes in Colorado

Bird Mites as a Pest within Homes in Colorado

Wild and domesticated birds may be fed upon by a variety of mites and insects. A few of these, notably some of the "bird mites" and swallow bugs, may also bite humans when humans come in close contact with areas where birds nest or regularly roost.

The common bird feeding mites one can find in Colorado are northern fowl mite (*Ornithonyssus sylviarum*), chicken mite (*Dermanyssus gallinae*), and American bird mite (*Dermanyssus americanus*). All of these are external parasites of birds and may build high populations when birds are confined or remain in one location for extended periods, such as during nesting.

Life cycle of bird mites

Bird mites go through five life stages in their development: egg, three immature stages (larva, protonymph, deutonymph), and adult. During the last three stages mites will seek a blood meal. All of the bird mites are very small with northern fowl mite reaching a maximum size of about 0.02 inches (0.5 mm). Chicken mites are larger, about 0.06 inches (1.5 mm) and are most easily seen when engorged with a blood meal.

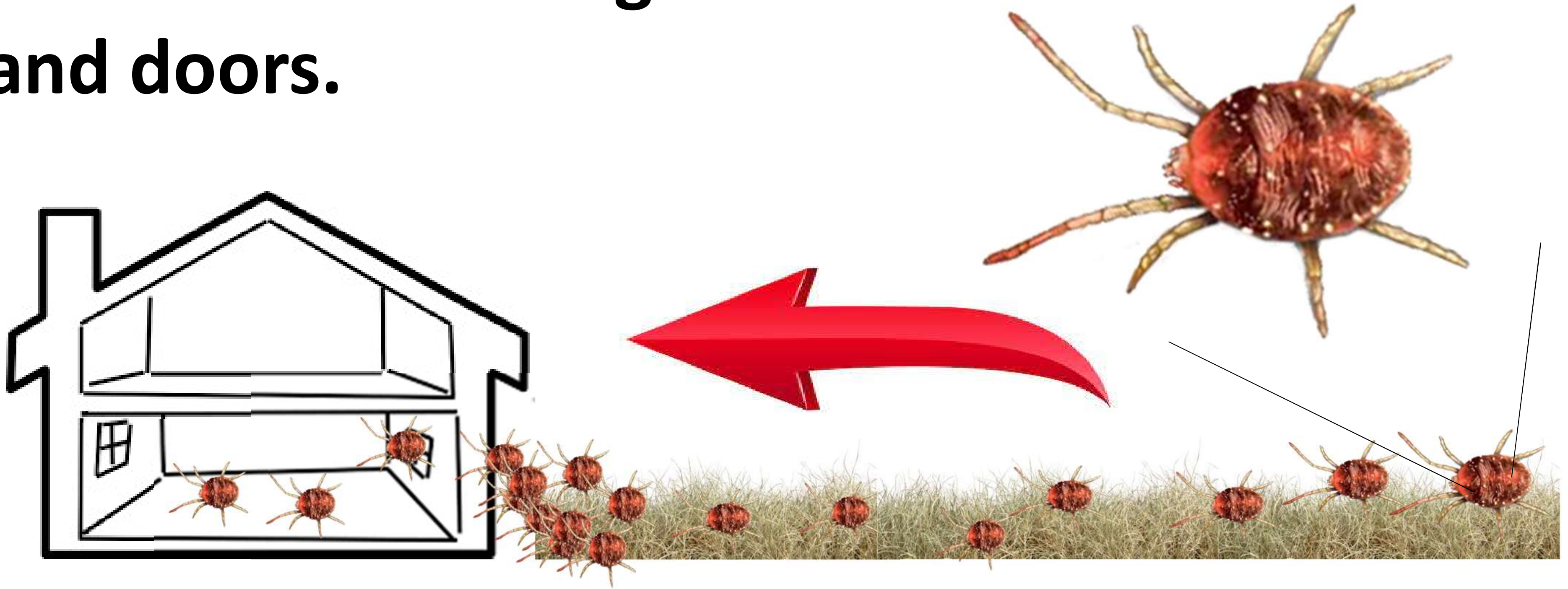
In the case of the northern fowl mite all stages take place on the bird host. Eggs hatch a day or two after they are laid producing a six legged stage (larva) that does not feed. Within about eight hours the larva molts to the protonymph stage, which does bite and feeds on blood. Five to seven days later, they become full-grown and reach the adult stage. The adult female will take one blood meal then lay a small number of eggs (typically 1-4). Adults are short-lived and the entire life cycle of the northern fowl mite, from eggs being laid until death, will usually be completed within a couple of weeks. Experimentally, well-fed mites have been observed to survive up to 2-3 weeks off their bird host when temperature and humidity conditions are

Clover Mites

(*Bryobia praetiosa*)

Clover mite activity – Late
February through Late April

During warm days in fall and spring, large numbers of clover mites may become active and enter homes through cracks around windows and doors.



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Clover and Other Mites of Turfgrass

Fact Sheet No. **5.505** Insect Series | **Home and Garden**

by W.S. Cranshaw*

Many species of mites are common in Colorado turfgrass. Some, such as the oribatid or "hardshell" mites, are important in the breakdown of thatch and the recycling of nutrients. Other are important predators of pest insects and mites. Three spider mites species are among those that damage Colorado turf: clover mites, Banks grass mites and brown wheat mites.

Clover Mites

Clover mites (*Bryobia praetiosa*) are a common type of spider mite in Colorado. They breed outdoors on turfgrass, clover and

Figure 1: Clover mite with egg.

Quick Facts

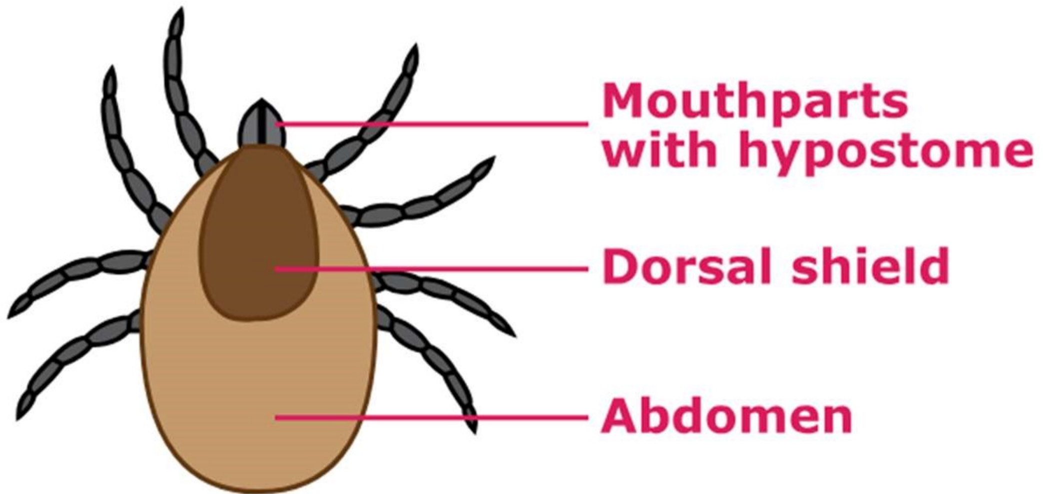
- Several species of spider mites can damage turfgrass in Colorado: clover mite, Banks grass mite and brown wheat mite.
- Most damage occurs during early to midspring.
- Damage to turfgrass is primarily related to dry conditions and turfgrass stressed by drought.

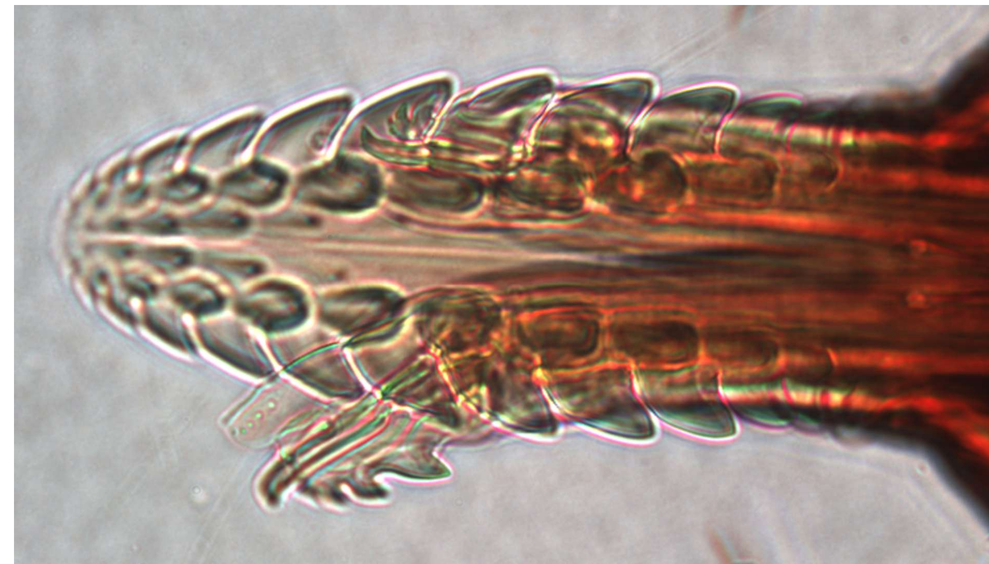
Dust Mite Allergens

Microscopic
They cannot bite people
Primarily live on dead skin cells
They are present in all homes
Can trigger asthma

Head and Body Lice

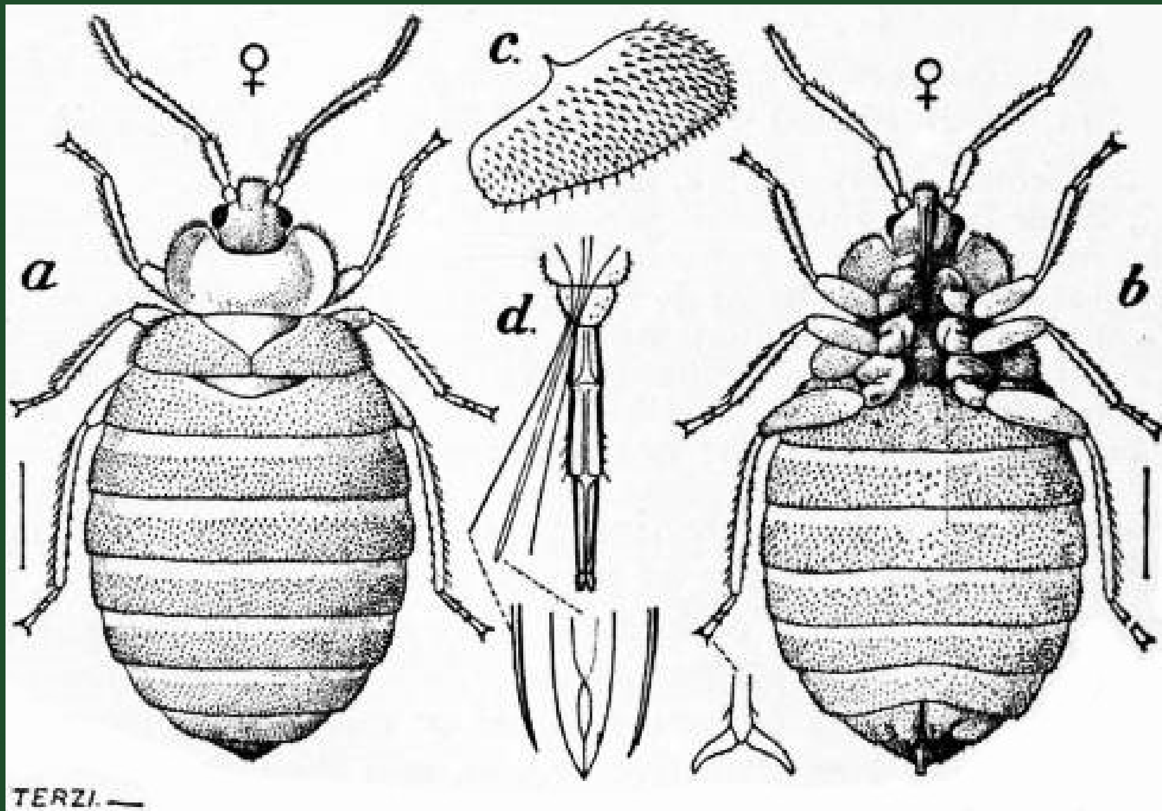
Ticks are blood feeding





Common Bed Bug

Cimex lectularius



Family Cimicidae

Bed bugs, bat bugs, bird bugs

All of these species are generally similar in appearance.

They are reddish-brown to grayish-brown with an oval body form and about 3/8-in long when full-grown.

All are wingless, although small wing pads are present on the back.

The various species found in Colorado can be separated by both length of their hairs and wing pad structure/wing pad shape

It can be difficult for a non-specialist to positively identify members of the family Cimicidae

Harborage

- When bed bugs are done feeding, they move away from the feeding site to a harborage site
- Their flattened shape allows them to utilize small cracks and crevices
- Learning to identify a harborage site is the key to an inspection

Under furniture

Under rugs or carpet

Behind wall hangings

On window coverings

Kissing Bug/Conenose Bug

Associated with packrat middens!

Colorado does have kissing bugs

They are nesting bugs, typically associated with rodent nests.

Colorado's common kissing bug feeds on the blood of packrats. When packrats die, kissing bugs will search for a blood meal.. they can come into contact with people!

Packrat Middens

Biting Flies

Spiders

Common true bugs that enter Colorado homes

Milkweed Bug

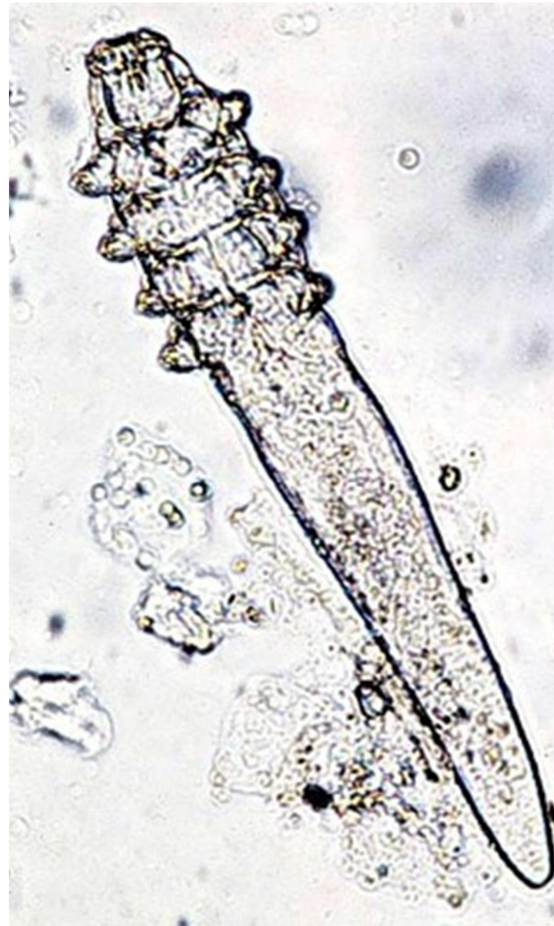
Boxelder Bug

Elm Seed Bug

Conifer Seed Bug

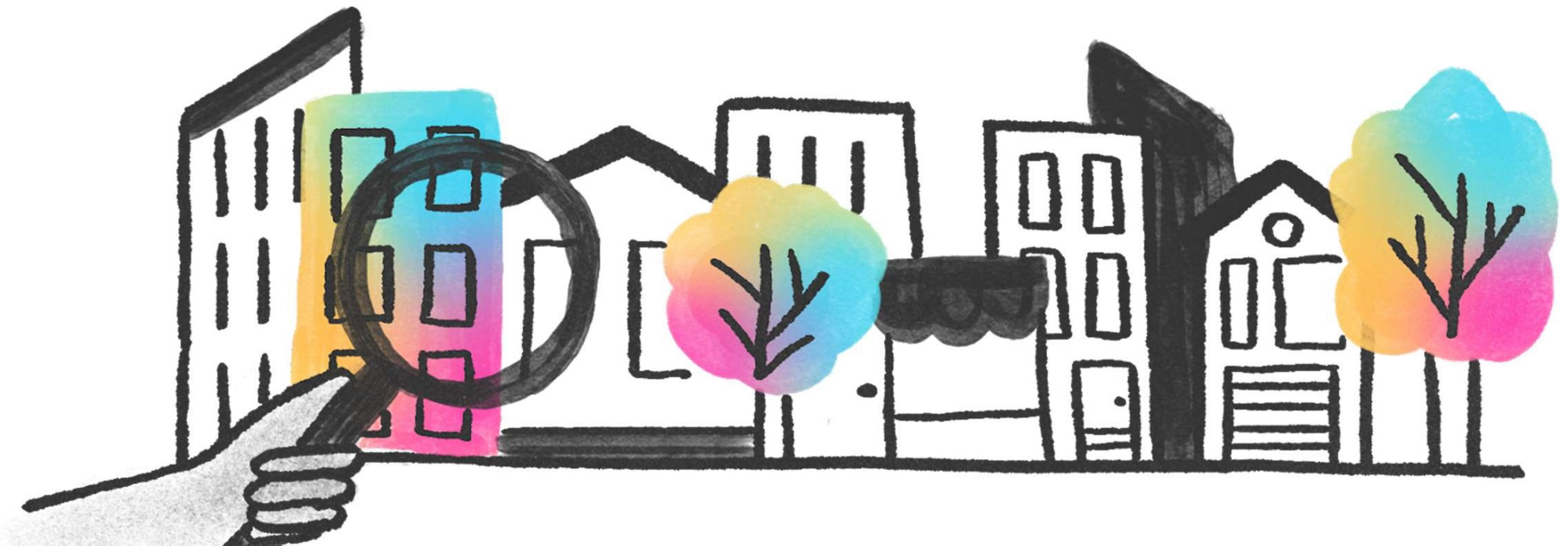
Springtails (Collembola)

Follicle Mites



Thrips

Recommendations for pesticide applicators dealing with those that may have delusional infestation



If you ever encounter suspected delusional infestation, it will require incredible **empathy, patience, and understanding**.

Pest management professionals (PMP’s) are often the first professionals' patients contact during symptom onset.

PMP’s often face accounts by patients of bizarre parasite activity and <u>unreasonable requests for treatment.</u>

These clients pose a unique challenge requiring a particular approach.

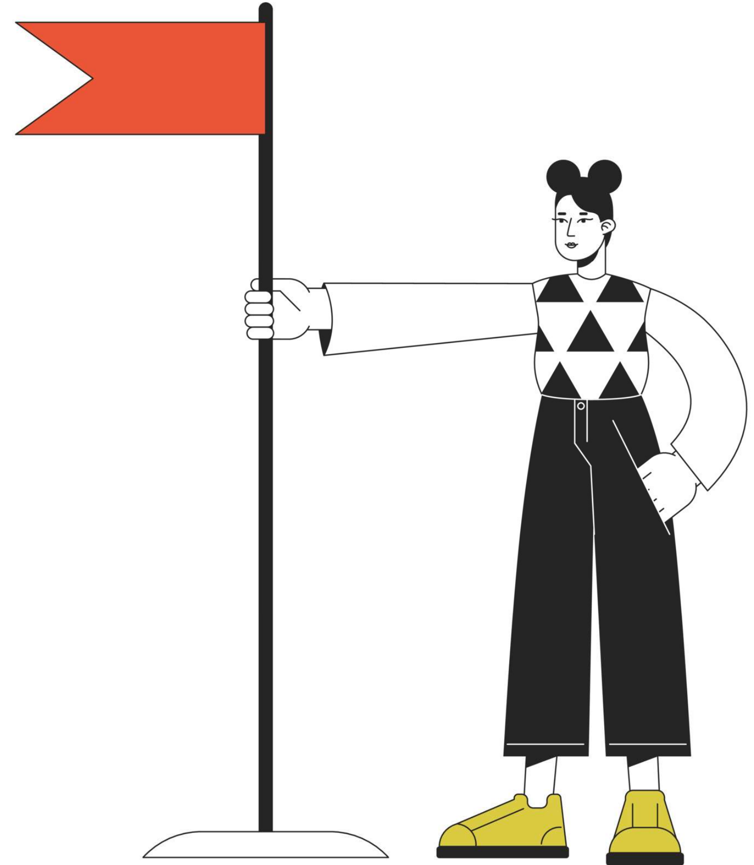
Train office/business staff to identify suspected DI callers by listening to what they say.

Speech red flags include: -

1) Repeated use of particular pronouns and verbs, “They, them, bites, etc.”

2) Repeated statements of being “bitten.”

3) Descriptions of crawling, biting, or parasites freely moving around the body or infesting objects, associates, or animals strongly suggests DI.



4) Bizarre descriptions
of perceived parasite biology and behavior. DI clients are often intellectually high functioning, so their descriptions can sound very convincing. Don’t be fooled.

5) Business staff should take notes and give them to a technician or collaborative entomologist with knowledge of regional pests of medical importance for review.

Pesticide applicators are encouraged to contact CSU Extension regarding suspected delusional parasitosis cases

I am always able to offer support or confirm your findings when it helps to support you while dealing with troubling or difficult clients you encounter

6) If office staff are suspicious, they had spoken with a DI caller, **warn technicians who are scheduled to service the client**.

7) Have in place a **service plan and protocol for DI cases** in the event legal or regulatory challenges arise.

8) Explain limitations of PMP’s duties and skills; that there is **no medical training or licensing given to technicians** to examine or diagnose bites, lesions, or human secretions.

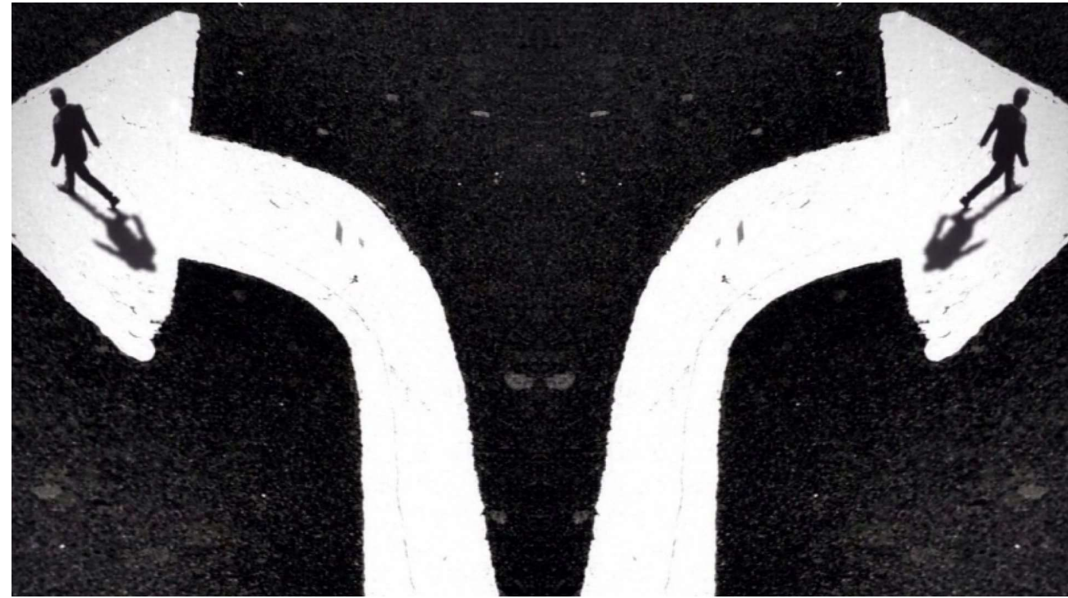
9) Maintain a **very strict professional position** and avoid being drawn into client beliefs and delusions.

Maintain a single focus.
Investigate whether there are arthropods or other possible parasites present. When walking into a situation, technicians do not know if they are working with: actual parasitism, true mental illness, depression, loneliness, anxiety, or an undiagnosed underlying medical condition with evolved emotional investment.

If results are negative for parasites depending on the demeanor of the client, suggest they contact a physician for help. Ask you company how they want this approached. Expect a negative reaction. With a frustrated angry client, maintain a courteous and professional demeanor.

his usually reduces tensions and provides less ammunition for use against the technician (s) and/or business.

The truth is you are the wrong professional to help them past this point. If a client continues to have a problem over an extended period without resolution and they refuse medical or other help, it may be necessary to politely end the relationship.



Treating a space when there is no evidence of an infestation, even though there may be extreme pressure to do so by a client is unethical.

Using inert materials such as water may have a temporary placebo effect and symptoms of the client may subside, but inevitably they return resulting in follow up calls.
This may lock the PMP into a revolving cycle of treatment for non-existent parasites and do more harm than good through erroneous confirmation.

Ask leadership within your company if they have a policy on how to handle these situations for if you come across them you should **know the steps to take before you encounter it.**

When people’s delusions affect pets

Imaginary infestations may not be rare… and sometimes it can involve blaming innocent furry friends.

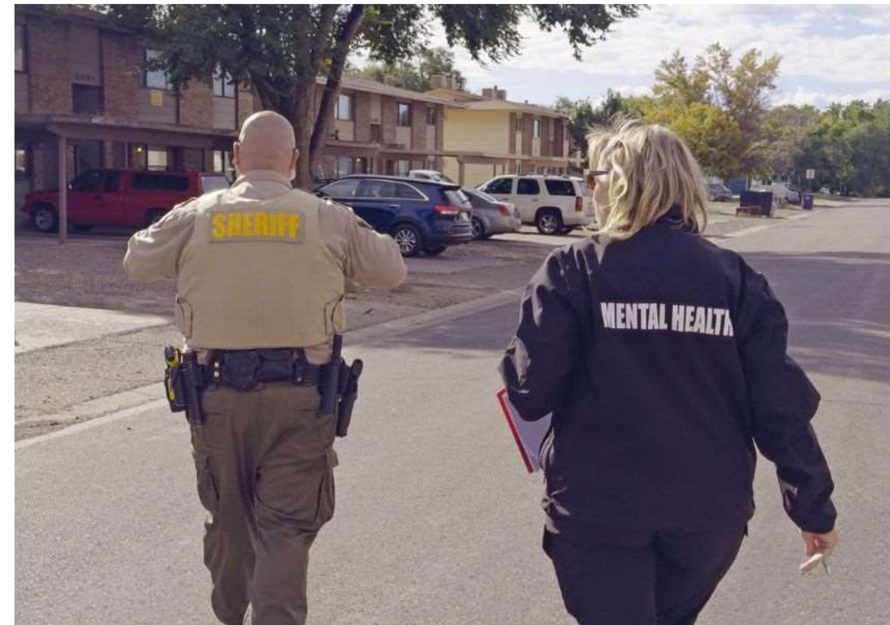
If you can, attempt to convince the individual that you need to talk to their veterinarian directly. Explain the background of what may be occurring and try early to get talking with vet since some animals can wrongfully be euthanized.

Stay Calm and Avoid Arguing: It's essential to remain calm and composed. Your demeanor can help reassure the person and prevent the situation from escalating.

Listen empathetically. These experiences are real to this person and so is their suffering. It goes a long way treating them with resect but do not allow them to waste your time unnecessarily.

Approach always considering your safety first when you are in someone's home or are on the phone. Do not have these conversations without the support of a colleague.

Maintain Safety: If the person's behavior becomes erratic or poses a risk to themselves or others, seek immediate help from emergency services or a mental health crisis team.



Mental Health Resources

National Resources

State Resources

For assistance during an emergency dial 911.

National Suicide & Crisis Lifeline (https://988lifeline.org/)
Call 988 for help 24 hours a day, seven days a week.
Nacional de Prevención del Suicidio 1-888-628-9454
Veteran? Hit option 1 to speak with a Specialist.
Crisis Text Line (https://www.crisistextline.org/)
Text HOME to 741741

Colorado Crisis Services Statewide behavioral health crisis response system offering mental health, substance use or emotional crisis help, information and referrals. Available 24/7/365, free resource.
Call: 1-844-493-8255 or Text: "Talk" to 38255.
Veteran? Hit option 1 to speak with a Vet Specialist.

Local Resources

Mesa County Sheriff's Office
215 Rice Street, Grand Junction, CO 81501
911 Emergency, Non-Emergency Dispatch 970-242-6706
(Covers all of Mesa County.) For assistance and to request a CO-Responder Team, Main Number: 970-244-3500

West Springs Hospital
515 28 ¾ Rd, Grand Junction, CO 81501
Main Number: 970-683-7200 or for Requesting Assessments and Admissions: 970-201-4299

St. Mary's Hospital-Emergency Room
2635 N. 7th Street, Grand Junction, CO 81501
970-298-2273
Able to take individuals with psychiatric emergencies.

Community Hospital-Emergency Room
2351 G Rd, Grand Junction, CO 81505, 970242-0920
Able to take individuals with psychiatric emergencies.

Mesa County Grand Valley Connects
510 29 ½ Rd, Grand Junction. CO 970248-6900
970-683-2663 Provides resources to Behavioral Health and other services in the community.

Mind Springs Mental Health
1-877-603-7289, www.mindspringshealth.org

Behavioral Health and Wellness
970-242-5707, www.bhwgj.com

Counseling & Education Center
970-243-9539, www.cecwecare.org

What to do if someone is at risk

If you think someone is thinking about suicide, assume you are the only one who will reach out. Here's how to talk to have an honest conversation with someone who may be struggling with their mental health:

- Talk to them in private
- Listen to their story
- Tell them you care about them
- Ask directly if they are thinking about suicide and if they say they are, take them seriously
- Encourage them to seek treatment or contact their doctor or therapist
- Help them call one of the resources on this sheet
- Avoid debating the value of life, minimizing their problems or giving advice

1. Express Concern: Let the person know that you are concerned, in a kind and supportive way.

2. Normalize: Normalize mental health issues to help the individual understand that they are not alone, and to help address potential stigma or self-limiting beliefs.

3. Activate: Activate the individual's support network and communicate your commitment to supporting the individual through the process of accessing resources.

4. Refer: Refer the individual to reputable resources and let them know there is help available.

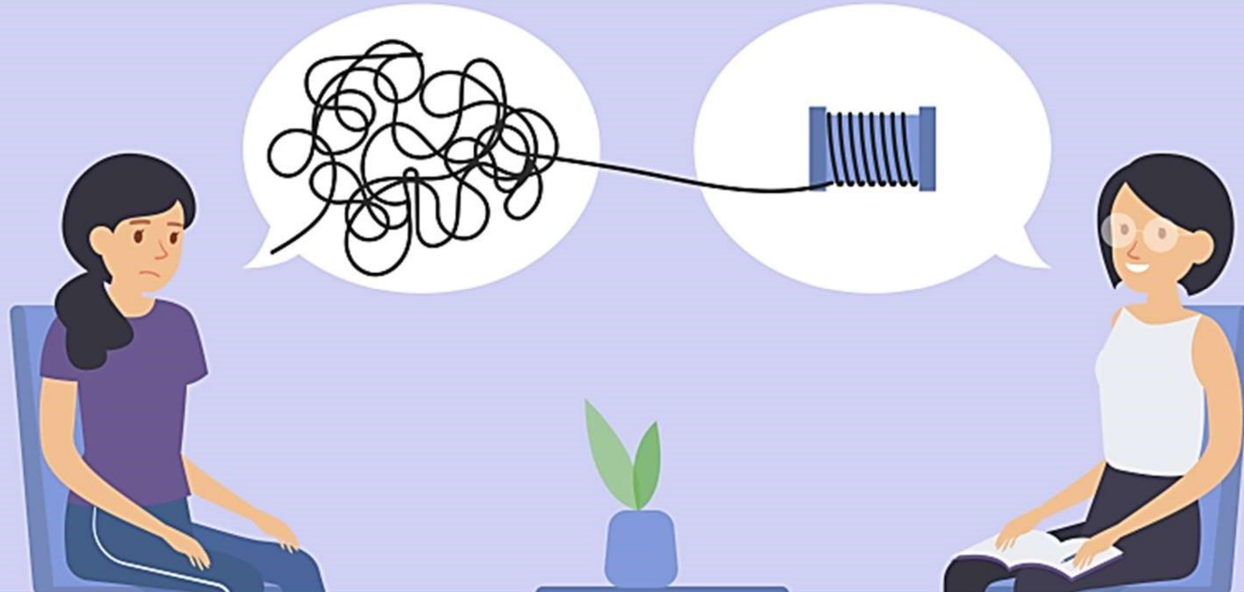
Encourage Professional Help: Suggest that the person speak with a mental health professional, such as a psychiatrist or psychologist, who can provide an accurate diagnosis and appropriate treatment.

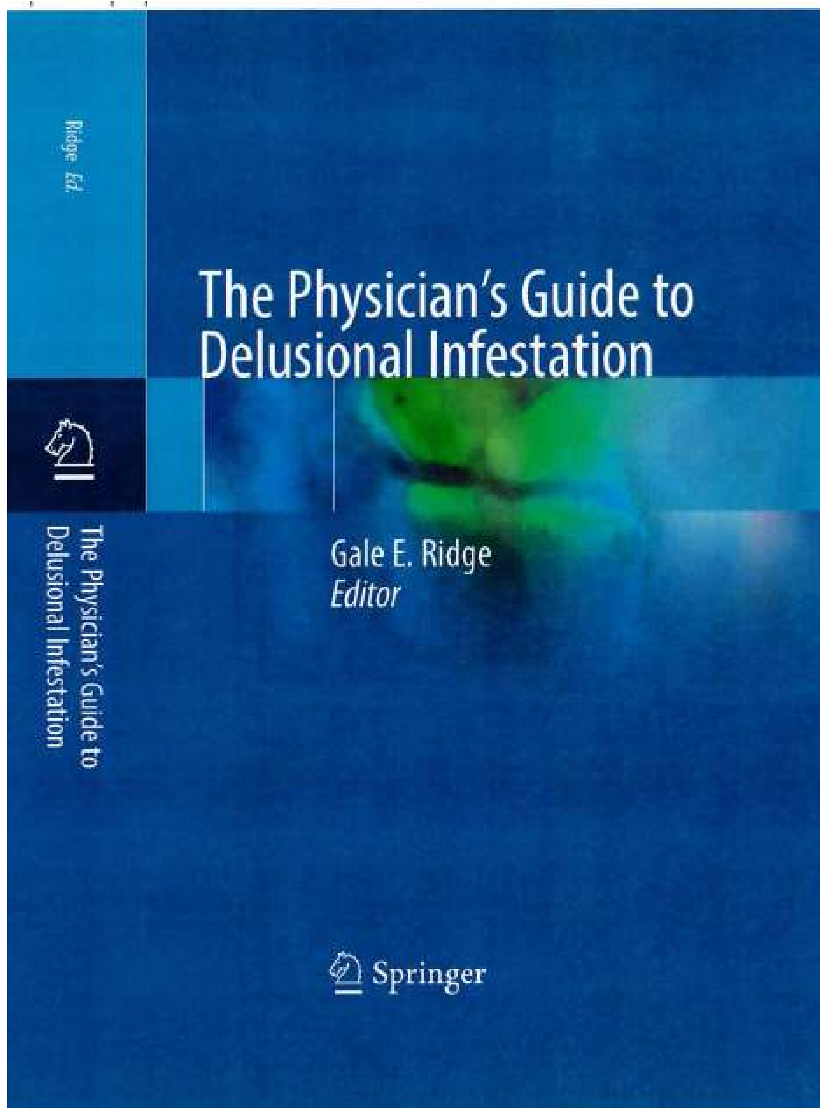
Establish Boundaries: If the person does not want help or becomes agitated, respect their boundaries and avoid forcing them to accept assistance.

Be aware of lying, manipulation, and gaslighting.

A series of interviews can reveal this behavior.

“**Always respect the true suffering of the individual -** it is very, very real to them - and to listen to what they are saying. Always try to keep an open mind on the situation - it is possible, perhaps extremely remotely, that it is "bugs" - but hold onto that.”





"The Physician's Guide to Delusional Infestation", using multidisciplinary compassionate care.

By Dr. Gail Ridge
CAES

Addressing Suspected Delusional Infestation Efforts being made by CSU Extension- Tri-River Area

Julie Elliott, CSU Extension Regional Behavioral Health Specialist

Dan Weller, Clinical Director for Mesa County's addiction treatment services

Helping to put together a forum or something with providers and medical staff in the valley to discuss your concerns and to try and produce a solution for the whole community.

Expert on DI- Dr. Gail Ridge is willing to virtually present on this subject to Mesa County medical community

JEFFREY A. LOCKWOOD

THE INFESTED MIND

Why Humans Fear, Loathe, and Love Insects

HANDBOOK OF PEST CONTROL

MALLIS

EDITORIAL DIRECTOR
STOY A. HEDGES, B.C.E.

TENTH EDITION

Ridge Ed.

The Physician's Guide to Delusional Infestation

The Physician's Guide to Delusional Infestation

Gale E. Ridge
Editor

Accidental therapists: For insect detectives, the trickiest cases involve the bugs that aren't really there
Written by Eric Boodman STAT News (affiliated with the Boston Globe).
March 22, 2017

Thank you

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Alice in Wonderland. Rabbit about to go down his hole.
Lewis Carroll.

CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875

Thank you!

TRI-RIVER AREA
COLORADO STATE UNIVERSITY
EXTENSION

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